

Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

REMARKS

Reconsideration of the application is requested.

Applicants acknowledge the Examiner's confirmation of receipt of applicants' certified copy of the priority document for the German Patent Application 101 02 458.4, filed January 15, 2001 supporting the claim for priority under 35 U.S.C. § 119.

Claims 15-39 remain in the application. Claims 15, 17-23, 25, 28-30, 33, and 36-39 have been amended. *Claims 1-14 were previously canceled in a preliminary amendment to facilitate prosecution of the instant application.*

In item 2 on page 2 of the above-identified Office Action, claims 15-39 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner states that "decoloring absorber" is indefinite. Moreover, the Examiner believes that the term "decoloring absorber" as used in the claim is allegedly only an intended function, which is not supported in the claim by structure. As such, the Examiner asserts that the claim is indefinite, because it is not clear as to what structure applicant intends to claim.

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The term "decoloring absorber" was originally derived from the translation of "*ausbleichbares Absorbermittel*" in the previously mentioned German Patent Application. Upon further review of the translation, "*ausbleichbares Absorbermittel*" is more accurately translated as "bleaching absorber" or "an absorber for bleaching by decoloring" and corresponding changes have been made in the claims and specification. See the enclosed pages from the German to English chemical dictionary¹. For example, claims 15, 36, 37, 38, and 39 have been amended to include "at least one bleaching absorber", "at least one absorber means for bleaching by decoloring", "at least one absorber layer for bleaching", "at least one absorber configured to bleach by decoloring", and "at least one absorber for bleaching by decoloring" respectively.

Support for these changes may be found on page 2, 6-8, and 10 of the specification of the instant application and are therefore not new matter. As can be seen, the claims each include both structure and function, namely an absorber for bleaching or a bleaching absorber. As such they cannot be considered indefinite. It is also noted that MPEP 2163.07 provides for this situation:

Where a U.S. application as originally filed was in a non-English language and an English translation thereof was subsequently submitted pursuant to 37 CFR 1.52 (d), if there is an error in the English translation,

¹ DICTIONARY OF CHEMISTRY AND CHEMICAL ENGINEERING 14, 79 (2d ed. 1978).

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applicant may rely on the disclosure of the originally filed non-English language U.S. application to support correction of an error in the English translation document.

Accordingly, the applicant strongly disagrees with the position that the term "decoloring absorber" or "bleaching absorber" (as currently used in the amended form) is indefinite, and respectfully traverses the rejection. This is especially true in light of the exhaustive disclosure provided in the specification of the instant application. For example, on page 2 in the paragraph starting on line 19, the instant application provides the following description:

Bleaching absorbers or bleaching quantum films are known per se as optical absorbers with nonlinear absorption behavior. The transmission of the bleaching absorbers depends on the irradiated radiation intensity. With increasing power densities, the absorption decreases; at very high power densities, the absorber is substantially transparent. The use of absorber means for semiconductor lasers is known in principle (for example from US-A-5,574,738), these absorber means only being used to absorb certain wavelengths of the radiation, to achieve self-modulation of the laser diode in the GHz range.

In addition, the last paragraph on page 6 indicates that in one embodiment the "bleaching absorber means" is an 8 nm thick $\text{In}_{0.2}\text{Ga}_{0.8}\text{As}$ quantum film. The embodiment is further described on page 7, where the bleaching by decoloring relationship relative to the transparency of the absorber means is clarified:

The transparency of the absorber means 5 increases with increasing irradiation intensity, so that at high intensities the absorber means is substantially

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transparent. In the case of such quantum films, the intensity critical for the bleaching by decoloring lies around 1 kW/cm^2 .

Moreover, the last two paragraphs on page 8 clarify how the relative position of the decoloring absorber within the standing wave field 100 help determine the average intensity needed to obtain the transparent state. Page 10 of the instant application states:

Alternative forms of construction than the configuration outlined, with a plurality of thin bleaching absorber layers or solid saturable structures, are of course possible. Similarly, the structure is not restricted to the InAlGaAs semiconductor system, but can also be realized for example in the material systems of InGaAsP (for example on an InP substrate) or InAlGaAsN (for example on a sapphire, SiC or GaAs substrate). The vertical laser structure can also be realized in II-VI semiconductor systems, such as ZnMgBeSSe for example.

It is accordingly believed that the specification and the claims meet the requirements of 35 U.S.C. § 112, second paragraph. The above-noted changes to the claims are provided solely for clarification or cosmetic reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

In view of the foregoing, reconsideration and allowance of claims 15-39 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a

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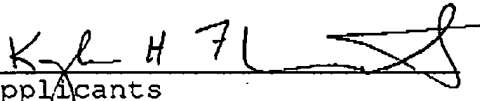
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telephone call so that, if possible, patentable language can be worked out.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,


For Applicants

Kyle H. Flindt
Reg. No. 42,539

KHF:cgm

December 24, 2003

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absondern – Absperrieglied

absondern to separate, to abstract, to detach, to isolate, to segregate, (ausscheiden) to discharge, to excrete, to secrete
 Absondern *n* isolating, separating
 Absonderung *f* (Abtrennung) separation, (Sekretion) secretion
 Absorbens *n* (pl. Absorbentia) absorbent [agent]
 Absorber *m* (Kältemaschine) absorber
 Absorberelement *n* (Reaktor) absorber device
 Absorberregelung *f* (Kältemaschine) absorber control
 absorbierbar absorbable
 Absorbierbarkeit *f* absorbability
 absorbieren to absorb, to suck up, (Gase) to occlude
 Absorbieren *n* absorbing
 absorbierend absorbent, absorbing
 Absorbierungsvermögen *n* absorption capacity
 Absorptiometer *n* absorptiometer
 Absorptimetrie *f* absorptiometry
 absorptimetrisch absorptiometric
 Absorption *f* absorption, dielektrische ~ (Elektr) dielectric absorption
 Absorptionsachse *f* absorption axis
 Absorptionsanlage *f* absorption equipment, absorption installation, absorption plant
 Absorptionsapparat *m* absorption apparatus
 Absorptionsbande *f* (pl Absorptionsbande) absorption band
 Absorptionsbehälter *m* absorption cell
 Absorptionsbereich *m* absorption region
 absorptionsfähig absorbent, absorptive, capable of absorbing
 Absorptionsfähigkeit *f* absorptive capacity, degree of absorption
 Absorptionsfaktor *m* absorption factor
 Absorptionsfarbe *f* absorption color
 Absorptionsfilter *n* absorption filter
 Absorptionsflasche *f* absorption bottle, absorption flask
 Absorptionsflüssigkeit *f* absorption liquid, washing liquid
 Absorptionsgefäß *n* absorption vessel
 Absorptionsgeschwindigkeit *f* absorption velocity
 Absorptionsgesetz *n* law of absorption
 Absorptionsgewebe *n* absorbent tissue, absorbing tissue
 Absorptionsgleichgewicht *n* absorption equilibrium
 Absorptionsgrenze *f* absorption limit
 Absorptionshygrometer *n* absorption hygrometer
 Absorptionsindex *m* (Opt) absorption index
 Absorptionskältemaschine *f* absorption refrigeration machine
 Absorptionskante *f* (Atom) absorption edge, absorption limit, (Spektr) absorption discontinuity, absorption edge, absorption limit
 Absorptionskeil *m* absorption wedge

Absorptionskoeffizient *m* absorption coefficient
 Absorptionskohle *f* absorptive charcoal
 Absorptionskolonne *f* absorption column, washing column
 Absorptionskraft *f* absorptive power
 Absorptionsküvette *f* absorption cell
 Absorptionsleistung *f* absorptive capacity
 Absorptionslinie *f* absorption line
 Absorptionsmaschine *f* absorption machine
 Absorptionsmeßgerät *n* absorptiometer
 Absorptionsmessung *f* absorption measurement
 Absorptionsmittel *n* absorbent, absorber, absorbing medium
 Absorptionspipette *f* absorption pipette
 Absorptionsquerschnitt *m* absorption cross section
 Absorptionsraum *m* absorption chamber
 Absorptionsröhre *f* absorption tube
 Absorptionsschleife *f* absorption coil
 Absorptionsspektralanalyse *f* absorption-spectrum analysis
 Absorptionsspektrum *n* absorption spectrum
 Absorptionssprung *m* absorption discontinuity
 Absorptionssstreifen *m* absorption band
 Absorptionsstrom *m* (Elektr) absorption current
 Absorptionsturm *m* absorption column, absorption tower
 Absorptionsverbindung *f* (Chem) absorption compound
 Absorptionsverfahren *n* method of absorption, process of absorption
 Absorptionsverlust *m* absorption loss
 Absorptionsvermögen *n* absorptive capacity, absorption factor, absorptive power, absorptivity
 Absorptionswärme *f* heat of absorption
 Absorptiv *n* absorbate
 abspachteln to scrape [off]
 abspänen to chip
 abspaltbar cleavable, detachable, separable
 Abspaltbarkeit *f* (des Elektrons) splitting off (of the electron)
 abspalten to split off, to cleave, to crack, to eliminate, to remove, to separate
 Abspalten *n* splitting off, cracking, eliminating, separating
 abspaltend cleaving, cracking, splitting
 Abspaltung *f* splitting off, cleavage, elimination, removal, separation
 Abspannen *n* eines Werkzeuges stripping (of a mold)
 absperierbar capable of being locked
 Absperrröhre *f* shut-off nozzle
 absperren to bar, to block, to cut off, to isolate, to shut off
 absperrend blocking
 Absperrrflüssigkeit *f* sealing liquid, confining liquid
 Absperrieglied *n* shut-off device, sluice, valve

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Aurisulfid *n* (Gold(III)-sulfid) auric sulfide,
 gold trisulfide
 Auriverbindung *f* (Gold(III)-verbindung) auric
 compound
 Aurocantan *n* aurocantane
 Aurochin *n* aurochin, quinine p-aminobenzoate
 Aurochlorid *n* (Gold(I)-chlorid) aurous chloride,
 gold monochloride
 Aurochlorwasserstoffsäure *f* chloroauric(I) acid,
 chloroaurous acid
 Aurocyanid *n* (Gold(I)-cyanid) aurous cyanide,
 gold(I) cyanide
 Aurocyanwasserstoffsäure *f* aurocyanic acid,
 cyanoauric(I) acid
 Aurofelt *n* (Haarbeize) aurofelt
 Aurokaliumcyanid *n* potassium aurocyanide,
 potassium cyanoaurate(I)
 Auroa *n* aurone
 Auroalfarbe *f* aural dye
 Aurooxid *n* gold(I) oxide, aurous oxide
 Auropfenin *n* aurophenine
 Aurora-Linie *f* (Spektr) auroral line
 Aurorhodanwasserstoffsäure *f* aurothiocyanic
 acid, thiocyanatoauric(I) acid
 Aurotin *n* aurotine
 Auroverbindung *f* (Gold(I)-Verbindung) aurous
 compound, gold(I) compound
 Auroxanthin *n* auroxanthin
 Aurum *n* (Lat) gold
 ausäthern to extract with ether, to etherize, to
 shake out with ether
 Ausäthern *n* extracting with ether
 ausätzen to cauterize; to destroy by caustics, to
 discharge
 Ausätzung *f* cauterization
 ausarbeiten to complete, to finish, to perfect, to
 work out
 ausarten to degenerate
 ausatmen to exhale, to expire
 Ausatmung *f* expiration
 ausbalancieren to equilibrate, to balance, to
 compensate, to counterbalance, to
 counterpoise
 Ausbalancierung *f* balancing, counterbalancing,
 equilibration
 Ausbau *m* development, completion, extension
 ausbauchen to emboss, to hollow out, to swell
 ausbauchung *f* bulge, camber, widening
 ausbauen to complete, to improve; (Teile) to
 disassemble, to dismount
 ausbedingen to reserve, to stipulate
 ausbeizen to remove with corrosive
 ausbessern to repair
 ausbesserungsbedürftig in want of repairs
 Ausbesserungsmasse *f* lining material for repairs
 Ausbesserungswerkstatt *f* repair shop
 ausbeulen to round out, to swell out
 Ausbeute *f* conversion (polymerization):
 efficiency, gain, output, profit, (Chem) yield,

photoelektrische ~ photoelectric yield,
 photoelectric emissivity
 Ausbeuteerhöhung *f* increase in yield
 Ausbeutegleichung *f* (Atom) gain equation
 Ausbeutekurve *f* yield curve
 Ausbeutematrix *f* efficiency matrix
 Ausbeutemessung *f* yield measurement
 Ausbeutetensor *m* efficiency tensor
 Ausbeutung *f* exploitation, utilization, (Bergbau)
 winning, working
 ausbiegen to bend out, to deflect, to turn out
 Ausbiegung *f* deflection
 ausbilden to develop, to improve
 Ausbildung *f* formation; development:
 education, ~ der Asymmetrie formation of
 asymmetry
 Ausblasedampf *m* exhaust steam
 Ausblasehahn *m* blow-off cock, drain cock
 Ausblaseleitung *f* escape pipe, blow-off main,
 blow-off pipe
 ausblasen (Dampf) to blow off, to exhaust,
 (Kerze) to blow out
 Ausblasen *n* blowing out
 Ausblaseventil *n* blow-off valve
 ausbleiben to vanish, to disappear
 Ausbleiben *n* absence, disappearance
 ausbleichen to discolor, to bleach by decoloring,
 to fade, to lose color
 Ausbleichen *n* bleaching, ~ durch Abgase *f pl*
 gas fume fading
 Ausbleichverfahren *n* bleaching-out process
 ausbleien to line with lead
 ausblenden (Elektr) to shield, (Opt) to collimate
 Ausblick *m* outlook, prospect
 ausblühen (Chem) to effloresce
 Ausblühen *n* bloom, blooming, efflorescing
 Ausblühung *f* bloom, efflorescence, (Schweiß)
 blistering
 Ausbluten *n* bleeding (of colors)
 Ausblutung *f* bleeding (of colors)
 ausbohren to bore out, to drill
 ausbrechen to break out
 Ausbrechen *n* break-away
 ausbreiten to spread out, to display, to extend, to
 flatten; to permeate
 Ausbreitprobe *f* flattening test, flow test,
 hammering test
 Ausbreitung *f* diffusion; flattening out:
 propagation
 Ausbreitungsfeld *n* (Comp) propagate field
 Ausbreitungsgeschwindigkeit *f* velocity of
 propagation
 Ausbreitungsparameter *m* propagation
 parameter
 Ausbreitungsproblem *n* propagation problem
 Ausbreitungsrichtung *f* direction of propagation
 Ausbreitungswiderstand *m* diffusion resistance,
 resistance to spreading

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 Kyle H. Gilmer		 Michael J. Lee	
<u>IN THE UNITED STATES PATENT AND TRADEMARK OFFICE</u>			
Applic. No.	: 10/047,613	Confirmation No.:	5759
Applicant	: Karl Joachim Ebeling, et al.		
Filed	: January 15, 2002		
Art Unit	: 2828		
Examiner	: James W. Davis		
Title	: Vertical Laser Blade with Means for Beam Profile Forming		
Docket No.	: MEN-IT 213		
Customer No.	: 24131		
<u>A M E N D M E N T</u>			
Mail Stop Men Fee Amendment Hon. Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450			
S i r :			
Responsive to the Office Action dated September 24, 2003			
kindly amend the above-identified application as follows:			
Amendments to the Specification begin on page 2 of this paper.			
Amendments to the Claims are reflected in the listing of claims which begins on page 10 of this paper.			
Remarks/Arguments begin on page 17 of this paper.			
- 1 -			
PAGE 03 * RCVD AT 12/29/2003 11:23:29 AM [Eastern Standard Time] * SVR:USPTO-EFXXF-1/0 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm-ss):07-28			

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12-24-'03 10:33 FROM-Lerner & Greenberg +9549251101 T-382 P27/32 U-245

App. No. 10/047,013
Pmt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

vertical laser diode with an integrated ~~decoating~~ absorber layer 30 with an bleaching absorber means 5. The vertical laser diode having, as the lowermost layer, an n-doped GaAs substrate 1, which is provided with a GaInAs contact 10.

please replace the paragraph beginning on page 6, line 6 with the following amended paragraph:

The structure outlined in figure 1 of a vertical laser diode with an integrated ~~decoating~~ bleaching absorber layer 30 with an absorber means 5 has, as the lowermost layer, an n-doped GaAs substrate 1, which is provided with a GaInAs contact 10.

Please replace the two paragraphs beginning on page 6, line 28 and page 7, line 1 with the following two amended paragraphs:

Arranged in the absorber layer 30 as the ~~decoating~~ bleaching absorber means 5 is an 8 nm thick In_{0.2}Ga_{0.8}As quantum film. This is surrounded on both sides by in each case 10 nm thick GaAs barriers, these layers all having a doping of $p = 5 \cdot 10^{17} \text{ cm}^{-3}$ (see figure 2).

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PAGE 12 * RCVD AT 12/24/2003 4:35:09 PM [Eastern Standard Time] * SVR:USPTO-EFXXF-1/0 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm-ss):07-14

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<u>IN THE UNITED STATES PATENT AND TRADEMARK OFFICE</u>			
Applic. No.	: 10/047,613	Confirmation No.:	5759
Applicant	: Nori Joseph Ebeling, et al.		
Filed	: January 15, 2002		
Art Unit	: 2828		
Examiner	: James H. Davis		
Title	: Vertical Laser Diode with Means for Beam Profile Forming		
Docket No.	: MEN-IT 213		
Customer No.	: 24131		
<u>A M E N D M E N T</u>			
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C I S :			
Responsive to the Office Action dated September 24, 2003			
kindly amend the above-identified application as follows:			
Amendments to the Specification begin on page 2 of this paper.			
Amendments to the Claims are reflected in the listing of claims which begins on page 10 of this paper.			
Remarks/Arguments begin on page 17 of this paper.			
- 1 -			
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12-29-'03 10:34 FROM-Lerner & Greenberg +9549251101 T-382 P29/32 U-245

Appl. No. 10/047,613
Andt. Dated December 24, 2003
Reply to Office Action of September 24, 2003SPECIFICATION AMENDMENTS

Please replace the previously presented paragraph starting on page 1, line 7 with the following amended paragraph:

The invention relates to a laser diode with a vertical resonator having a shaper for shaping the beam profile of the laser diode with at least one bleaching ~~decolorizing~~ absorber in a vertical resonator and to an optical system, in particular a CD player or a data transmission system, with such a laser diode.

Please replace the three previously presented paragraphs on page 2, starting on line 5 with the following three amended paragraphs:

This object is achieved according to the invention by a laser diode with a vertical resonator having a shaper for shaping the beam profile of the laser diode with at least one bleaching ~~decolorizing~~ absorber in a vertical resonator.

An important part of the invention is the introduction of a means for beam profiling, the means having at least one absorber means with a bleaching by decolorizing (saturable) absorber.

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PAGE 17 * RCVD AT 12/29/2003 6:15:30 PM (Eastern Standard Time) * SVR:USPTO-EFRR-1/0 * DNIS:3729306 * CSID:+9549251101 * DURATION (mm:ss):07:14

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12-24-'03 18:25 FROM-Lerner & Greenberg +9549251101 T-382 P01/24 U-228

Appl. No. 10/047,613
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Alternative means of construction than the configuration outlined, with a plurality of thin decoloring bleaching absorber layers or solid saturable structures, are of course possible. Similarly, the structure is not restricted to the InAlGaAs semiconductor system, but can also be realized for example in the material systems of InGaAsP (for example on an InP substrate) or InAlGaAsN (for example on a sapphire, SiC or GaAs substrate). The vertical laser structure can also be realized in II-VI semiconductor systems, such as ZnMgBSe for example.

Please replace the paragraph beginning on page 10, line 23 with the following amended paragraph:

In the embodiment described here, only one absorber means is used in the vertical resonator. It is also possible in principle, in alternative embodiments, to use the principle of transverse mode selection for integrating a plurality of decoloring bleaching or saturable absorber means. This is appropriate in the case in which, for example, a plurality of active layers are provided in a stack of layers, as occurs in the case of a multistage vertically emitting laser diode (cascaded laser diode). In cascaded laser diodes, the active regions are electrically coupled with one another by tunnel

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PAGE 1/2 RCVD AT 12/29/2003 6:21:10 PM [Eastern Standard Time] SVR:USPTO-EFXXF-1/0 DNIS:8729306 CSID:+9549251101 DURATION (mm:ss):07:14

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12-29-'03 10:34 FROM-Lerner & Greenberg +9549251101 T-382 P31/32 U-245

Appl. No. 10/047,613
Filed: Dated December 24, 2003
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diodes operated in the reverse direction, thereby achieving a
higher optical gain in the vertical resonator.

Please replace the paragraph beginning on page 11, line 7
with the following amended paragraph:

In any event (i.e. in the case of one or more absorber means
5), the optical bleaching by dyeing of the absorber can
be additionally assisted by local current constriction.

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Appl. No. 10/017,613
AMT. Dated December 24, 2003
Reply to Office Action of September 24, 2003

layer in said vertical resonator, said layer having a
thickness greater than a quarter of a material wavelength.

23 (currently amended): The laser diode according to claim
15, wherein said at least one absorber (45) has a current
constrictor.

24 (previously presented): The laser diode according to claim
23, wherein said current constrictor is a combination of a
medium of said absorber with one of the group consisting of
an oxide aperture and proton implantation.

25 (currently amended): The laser diode according to claim
15, wherein said at least one absorber (45) has a means for
current constrictor

26 (previously presented): The laser diode according to claim
25, wherein said current constricting means is a combination
of a medium of said absorber with one of the group consisting
of an oxide aperture and proton implantation.

27 (previously presented): The laser diode according to claim
16, wherein said pn junction has a p-contact and an n-contact
each to be connected to a respective one of two electrical
supply leads.

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